C-A OPERATIONS PROCEDURES MANUAL

# 11.6.1 Procedure for Preparing the E949 Spectrometer Magnet for Operations

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Collider-Accelerator Department Chairman Date

S. Kettell

## 11.6.1 Procedure for Preparing the E949 Spectrometer Magnet for Operation

### 1. Purpose

The purpose of this procedure is to prepare for operation of the E949 spectrometer magnet. The procedure consists of ensuring that warning signs are in place before energizing the power supplies.

### 2. Responsibilities

2.1 The E949 spectrometer magnet operator is responsible for initiating and participating in this procedure.

2.2 The Collider-Accelerator Support (CAS) watch is responsible for unlocking the power supplies.

### 3. Prerequisites

3.1 The E949 spectrometer magnet operators shall consist of E949 personnel. They shall be trained by the E949 spectrometer magnet training coordinator to use the Dibbuk program for this purpose.

3.2 Before the magnet can be run the E949 spectrometer magnet training coordinator, or designee, shall ensure that the spectrometer endcaps are in place or that other suitable barriers are in place. The endcaps or other suitable barriers assure that no person has access to a region with magnetic field greater than 500 Gauss.

3.3 The 5 Gauss perimeter shall be posted by the on Duty ES&H Coordinator to warn personnel with a medical implant or pacemaker. This posting will normally be applied at the fence to the E949 detector area (assuming that fields are 5 Gauss or less at that point).

### 4. Precautions

None

### 5. Procedures

**Note:**

Particular attention must be paid to special electromagnets such as large gap spectrometers. There is considerable hazard from heavy objects such as tools being moved or shifted by the large fringe field of such magnets, and so the area surrounding the magnet must be checked to be sure that it is free of ferro-magnetic materials and personnel before turning them on.

**Note:**

Routine occupational exposures should not exceed 600 gauss (G) whole body, or 6000 G to the limbs on a daily, time-weighted average basis. Recommended ceiling values are 20,000 G for the whole body and 50,000 G for the limbs. Safety hazards may exist from the mechanical forces exerted by the magnetic field upon medical implants. Cardiac pacemaker and similar medical electronic device wearers should not be exposed to field levels exceeding 5G. Adverse effects may also be produced at higher flux densities resulting from forces upon other implanted devices such as suture staples, aneurysm clips, prostheses, etc.

5.1 The E949 spectrometer magnet training coordinator, or designee, shall ensure that the spectrometer endcaps or other suitable barriers are in place

5.2 The E949 spectrometer magnet operator shall notify MCR that he/she wishes to turn on the E949 spectrometer magnet.

**Note:**

The E949 spectrometer magnet uses slightly less than 1.2 MW at full field.

5.3 Request that the E949 spectrometer magnet training coordinator, or designee, insert the E949 key to enable the power supplies.

5.4 The E949 spectrometer magnet operator shall call the CAS watch to insert the CAS key to enable the power supplies.

5.5 The E949 spectrometer magnet operator shall inform any personnel close to the magnet that the magnet is about to be powered and will verify that there are no loose metal objects near the magnet endplates.

5.6 The CAS watch shall prepare the power supplies for use to the point that the magnet is in standby with local control.

5.7 The CAS watch shall set the rectifiers to “On” and the E949 spectrometer magnet training coordinator, or designee, shall verify that the “Magnet On” warning lights come on.

5.8 The CAS watch shall now set the power supplies to standby and ensure that the E949 spectrometer magnet operator has control of the magnet through Dibbuk for continued normal magnet operations outside of this procedure.

## 6. Documentation

None

## 7. References

None

## 8. Attachments

None